ABSTRACT OF THE DISCLOSURE

A method for the rapid measurement of polarization dependent properties of an optical device under test uses a novel technique to generate light in four different polarization states in which each state is individually sensed at a different interference frequency.

The device for executing this method includes a Mach-Zehnder interferometer (M-Z) having a reference arm and a signal arm. In the signal arm, a device called a "polarization state frequency multiplexer" (PSFM) splits the light into four ports, transforms each part into one of four predetermined polarization states and then combines the light in the different polarization states together. The combined light is then passed through the device under test and combined/interfered with the light propagating through the reference arm at the output of the M-Z interferometer. Since the optical frequency of the input light to the M-Z interferometer is scanned through a range of wavelengths at a fixed repetition rate, the output light intensity (reference pattern) from the interferometer is modulated. By analyzing the M-Z interferometer output in the frequency domain, the signal levels of each polarization state can be identified and measured.